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Access and use of e-journals by students of Kumasi Technical University, Kumasi, Ghana

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Introduction

Rapid improvements in information and communication technologies (ICT) have fundamentally changed information access, storage and dissemination. Previously, academic libraries were known to provide information mainly from physical library resources such as books and journals for their patrons. However, information provision in university libraries is gradually shifting from the physical resources to the electronic field. The basic fact about ICTs is that, they offer access to information in an electronic form usually called electronic information. Through advancements in ICT, access to information at all levels have been redefined with a corresponding effect on how academics worldwide use information in teaching and research. Researchers and faculty members are now having challenges with a number of information sources in a form of electronic resources on their desktops. Electronic resources have increasingly become readily available and easily accessible (Prabha et al., 2007).

Millar (2009) defined e-resources as information resources that are “created, generated, sent, communicated, received, or stored by electronic means”. E-resources take a number of forms including electronic journals, electronic databases, electronic books, electronic theses, electronic data archives, electronic manuscripts, electronic maps, electronic magazines, electronic newspaper, electronic research reports, electronic bibliographic database, World Wide Web (www), search engines, and others. Of all these, electronic journals are the most important to students and academics because they contain articles which may not be found in any other publication. An electronic journal (e-journal) is one which is offered electronically and used with the aid of computer and other communication technologies (Kumar & Reddy, 2014). E-journals are publications issued in successive order that are available in digital format.

Currently, academic libraries spend considerable amount of money in providing access to e-journals for patrons especially students and faculty members. Accessibility of e-journals can be in a form of websites which provides only table of contents or websites which grants full-text access of all issues of a particular journal. Presently, we have journals which are purely electronic in format and others have both the electronic and print versions. In terms of subscription, some of the journals are available for free (open access) on the internet (for example, Library Philosophy and Practice). On the other hand, in order to access the full-text of some other journals, one will have to subscribe and pay for the cost (Kumar & Reddy, 2014).

Most of the academic libraries in Ghana are members of the Consortium of Academic and Research Libraries in Ghana (CARLIGH) which negotiate on behalf of member institutions and acquires journal databases for members. Apart from this, academic libraries in the country are also privileged to access open access journals while others individually subscribe to some few other journals on their own or through sponsorship from some organizations. Electronic journals are convenient to use, easy to access, user friendly, enhance utilization of the library and encourage frequent access of library resources by patrons (Sunil, 2014). E-journals are easily accessible and always available with no geographical barriers (Zha et al., 2012).

The Kumasi Technical University (KsTU) library provides access to e-journals, some of them for free and others on paid subscription for patrons to utilize in the course of their research, teaching and learning activities. The e-journals also help the patrons to gain quick access to global information and improve resource sharing.

Kumasi Technical University (KsTU)

Kumasi Technical University was established in 1954 as Kumasi Technical Institute (K. T. I.) to offer craft courses. In 1963, the institute was converted to a non-tertiary Polytechnic status

under the Ghana Education Service to start offering, in addition, technician diploma and sub-professional courses. The Polytechnic Law, 1992 (PNDC L.321) elevated the Polytechnic to a tertiary institution to provide high calibre skilled manpower with reference to manufacturing, commerce, science and technology to act as a catalyst for technological development. As a Polytechnic it was one of the famous, elegant and vibrant Polytechnics in Ghana. The Technical University Act 2016, (Act 922) converted Kumasi Polytechnic to the present Kumasi Technical University with the aim of providing higher education in engineering, applied arts, science technology based disciplines, technical and vocational training. It is a spectacularly beautiful institution, which is located at the heart of the Garden city of West Africa, the capital city of the Ashanti Region of Ghana (Kumasi). It has within the period of its existence become an important centre for the training not only for Ghana but also for other African countries (KsTU, 2016).

Statement of the problem

According to Hassan (2010), as library budgets are falling, there is the need to make best use of the subscribed electronic resources. This will help to rationalize the monetary investment made in the purchase and preservation of these invaluable resources in academic libraries. Universities invest in electronic resources so that lecturers and students as well as researchers could have access to rich databases from vendors like Emerald, EBSCO, and ProQuest. What should be appreciated is that, academic libraries acquire electronic resources on a large scale but unfortunately, patrons do not use them on the same scale (Weiner, 2003).

An informal investigation conducted by the researchers indicated that the subscribed e-journals available to students of KsTU are not efficiently utilized. Some of the students were not aware of the availability of the e-journals at the KsTU library. Also, some of them were not competent in the use of computers, let alone accessing e-journals. Above all, inadequate infrastructural

facilities like computers and bandwidth also hindered accessibility. The end result was, at best, to avoid the use of electronic journals. The effect is that, KsTU was wasting huge scarce financial resources in acquiring these under-used e-journals. This study was therefore aimed at investigating the access and use of e-journals by the students of KsTU. Thus, the underlying factors for the under-utilization and inaccessibility of e-journals constituted the rationale for this study.

This research specifically sought to:

1. To determine the level of awareness of KsTU students on e-journals.
2. To determine the level of accessibility of electronic journals by KsTU students.
3. To determine the extent of utilization of electronic journals by KsTU students.
4. To establish the problems students of KsTU face in accessing and utilizing electronic journals.

LITERATURE REVIEW

Scholarly publications have changed from print format to electronic format. For this reason, modern-day libraries make available electronic access to many resources including full-text articles, indexes and complete journals. According to Merriam-Webster's Collegiate Dictionary (2006) a journal is "a periodical publication, especially dealing with matters of current interest". Journals are often published by professional associations, society, foundation, commercial publishers or institute. If the contents of journals are mostly academic in nature, they are known as scholarly journals and the electronic versions are also known as scholarly electronic journals. The first scholarly journal being "Journal des Scavans was published" in 1665 with a long history (Kumar & Grover, 2007). E-journal is one which is offered

electronically and used with the help of computer and other communication tools (Kumar & Kumar, 2005). The same editorial process is followed for both electronic and print journals.

Electronic Letters Online was the first e-journal to be circulated and it was published and disseminated by the Institute of Electrical and Electronics Engineers (IEEE) in 1994-1995. It started as emails in a form of plain text which was distributed to users through a mailing list. However, this method was deserted after a more applicable distribution process was presented later (Pettenati, 2001). “In the years 1994-1995 the first electronic journals appeared. Web distribution started in 1995-1996” (Zivkovic, 2008). In view of the likely benefits provided by electronic journals, a lot of university libraries no longer subscribe to print journals because they have fully accepted electronic journals (Thanuskodi, 2011).

In a study conducted by Msagati (2014) on knowledge and usage of e-journals by members the academics of Dar es Salaam University College of Education (DUCE), he noted that a number of studies have revealed that e-journals have become a relevant tool for students and researchers. Gray (2011) found that academics in the UK were using e-journals significantly by downloading articles at a very high average rate.

Lack of finance and key resources like human and material in many academic libraries in Ghana pose critical challenges for academics and researchers in their access to and delivery of relevant information. International Federation of Library Associations and Institutions (IFLA) and The Danish International Development Agency (DANIDA) agreed and accepted to support a pilot project on e-resources in Ghana in the 1990s. The project took off with five university libraries namely; University of Cape Coast, University of Ghana, University for Development Studies, Kwame Nkrumah University of Science and Technology, and Institute for Technological Information (INSTI). Through Programme for Enhancement of Research

Information (PERI), DANIDA funded and provided access to about some online journal database on CD-ROMs for the above mentioned institutions. Support from DANIDA ended in 2004 and that brought about the establishment of the Consortium of Academic and Research Libraries in Ghana (CARLIGH) in order to continue to enjoy the benefits of electronic journals (Asamoah-Hassan, 2010).

Awareness of E-Journals

Awareness can greatly influence the accessibility and usage of electronic journals in any library. The reason is that, it would be highly difficult if not impossible for anybody to access and use something that he or she is not aware of even if the person possesses all the necessary skills. Informed library patrons would attest to the fact that, libraries have a wide range of collections or resources that are more academic than most websites. Services which otherwise would not have been patronized could be highly utilized if users or the target group of people are aware of them (Bentil, 2011).

Asemi and Riyahiniya (2007) indicated in a study on awareness and usage of electronic resources in Isfahan University of Medical Sciences libraries, Iran, that it is very critical to create awareness of e-journals available from a library in order to influence usage of the e-journals. They further stated that, when users become aware of the resources it mostly leads to a corresponding increase in access and use of those important resources. Bayugo and Agbeko (2007) found that, faculty members were not aware of some journal databases available at the library which resulted in their under-utilization when they studied the attitude of the faculty members of College of Health Sciences, University of Ghana towards electronic resources usage.

Access to E-Journals

In a study on management of problems relating to electronic resources at UNN library in Nigeria, Ugwu and Onyegiri (2013) noted that “accessibility of these resources is re-defining the vision and mission of university libraries today”. Bonorino and Molteni (2007) found that for over a decade now, Argentine private universities had improved access to information for their academic community members.

Academic libraries, especially those in developing countries are adjusting to new essentials of rapid access to information to help their users (Nwezeh, 2010). Kumar and Grover (2007) who studied the influence of electronic journals on scholarly communication, user and library posited that, accessibility of published research comes with ease by electronic journals. Keyword search is being offered through electronic journals by a lot of publishers. Electronic journals can be accessed anywhere by a user through the computer. If the subscription to e-journals is multi-user or free on the World Wide Web (www), then a number of users can access them at a time. There has been a tremendous improvement in the accessibility of electronic contents in relation to the past when print information was the order of the day. Nowadays, there are a lot of channels available to scientists which enable them to find and access scholarly literature, bibliographic databases among others. It is therefore necessary to consider the effect of growth in information generated on a daily basis and how access to this information can impact scholars’ information seeking behaviour (Borrego & Olle’, 2006

In their study on the influence of e-journals at Indian Institute of Technology, Delhi, Kaur and on the internet or a desired study environment.

Use of E-Journals

In their study on how research scholars use e-journals in Indian central universities, Abdul and Ahmad (2009) observed that there has been an information explosion with the introduction of globalization in the area of education. They also noted that, there was a rapid change in the

environment from print-based one to one that is controlled by an electronic format and the most common tools for research activities were e-journals.

Results from a study on e-resources use at Ashesi University, Ghana by Dadzie (2005) showed that, 85 percent of students and faculty members used search engines (internet) to search for information. Also, students and faculty generally search for information by going through the library shelves. Bayugo and Agbeko (2007) investigated faculty members' preferences for specific databases and full-text journals in a survey they conducted at the University of Ghana. They found that, faculty members were not aware of some journal databases available at the library which resulted in under-utilization of the journals.

Islam, Alam and Sultana (2011) studied the use of acquired discussed by the Dhaka University library and reported low usage of the electronic journals due to major hindrances like; unawareness, inadequate fund for subscriptions, lack of computer skills, lack of orientation or training programmes, inadequate facilities at the computer lab, and unawareness of web-links to e-journals. Bablhavaeji and Anaraki (2013) also found poor use of electronic journals as opposed to high usage of Yahoo and Google which are only popular search engines. These findings resulted from a study on knowledge of students on electronic resources in Iran. Under-utilization of electronic journals was also observed according to a study on electronic resources by Oyedapo and Ojo (2013) at Obafemi Alowowo University, Nigeria. However, lack of searching skills was the underlying reason for the poor utilization of electronic resources. The major reason for the poor utilization of electronic resources was lack of searching skills.

Problems with Access and Use of E-journals

The results of a study conducted by Ahmed (2013) on the use of electronic resources in Bangladeshi public universities showed that, generally, academic staff were not satisfied with

the current level of e-resources subscribed by the public universities. He pointed to major limitations such as; access to computers, number of titles, access to back issues, difficulty in finding information, lack of access from home and slow download speed. The identified restrictions also influence the use of electronic resources in the public universities according to Ahmed (2013). These constraints may in turn, lead to other limitations including reluctance to use electronic resources on a regular basis which will subsequently result in low satisfaction with such resources.

In a survey carried out by Trivedi and Joshi (2009) on the use of e-journals and print journals by healthcare professionals in Gujarat, India, they found that most of the research scholars were making reference to electronic journals and print journals from their departmental libraries and the computer laboratories in the Central Library. However, the study revealed some inherent accessibility problems which include lack of ability to retrieve the needed health-based information through the available useful databases like Science Direct, MD-Consult and EBSCO as a result of lack of computer training and computer search skills. Other technical challenges like slow connectivity and slow downloading were also found.

Traditional obstacles such as internet connectivity, high cost of ICT equipment, issues with capacity and culture were observed to have hampered the use of health ICTs and for that matter, electronic resources in developing countries according to Bukachi and Pakenham-Walsh (2007). They further stated that connectivity continuous to be very poor in the African continent as it takes a very long period of time to download a single article on the internet. The major challenges include lack of local expertise and human resources capacity, organizational capacities to support the ICTs, internet services, computer hardware as well as capacity to use

electronic devices (Jensen, 2007). Vakkari (2008) asserted that enabling electronic information environment has a huge impact on the access and use of electronic resources in universities.

The major hindrances to access and use of e-journals as found by Boakye (2017) in a study on access and use of e-journals by the academic staff in selected private universities in Kumasi included slow and unstable network, lack of searching skills, information overload and limited number of core journals. Kwafoa et al. (2014) also report lack of awareness, lack of searching skills, poor infrastructure and slow internet speed as challenges faced by e-journal users face at the University of Cape Coast when they conducted a study to assess how administrators use e-journals at the University of Cape Coast.

METHODOLOGY

The study used the quantitative approach with survey as the adopted research method. The method allows the results of the study to be generalized from the sample perspective, to the entire population (Creswell, 2014). The survey method was employed to aid the collection of quantitative data for analysis. The population for the study consisted of the students in the Faculty of Applied Sciences and Technology, KsTU. This faculty was selected because it would have been extremely difficult considering resources that would be involved in including the entire student population in the study. Also, the selected faculty has similar structures like all the others and for that matter, the findings of the study could be generalized. The Faculty of Applied Sciences and Technology is made up of 4 departments namely: Computer Science, Hotel Catering and Institutional Management, Mathematics and Statistics as well as Information Science. Table 3.1 gives the breakdown of the total population.

Table 1: Population of students in Faculty of Applied Sciences and Technology, KsTU

Department	Population Size

Computer Science	433
Hotel Catering and Institutional Management	328
Mathematics and Statistics	242
Information Science	54
Total	1,109

Source: Fieldwork, 2018.

Sampling Size

Neuman (2007), argues that for smaller population under 1000, a researcher needs a large sampling ratio (about 30%) but for a moderately large population that is 1000, a smaller sampling ratio (about 10%) is needed to be equally accurate. Based on the above, the researcher used 10% of the total population which is 108 in order to obtain adequate confidence in the population and to have a good chance of detecting significant results. Table 2 below gives the number of students selected from each faculty for the study.

Table 2: Number of Respondents selected from each Department

Faculty of Applied Sciences and Technology, KsTU		
Department	Population Size	Sample Size (10%)
Computer Science	433	43
Hotel Catering and Institutional Management	328	33
Mathematics and Statistics	242	24
Information Science	54	5

Total	1,057	105

Source: Fieldwork, 2018.

Sampling technique

The stratified and convenience sampling techniques were used to select respondents to obtain the target population from different departments in the Faculty of Applied Sciences and Technology. Stratified sampling method was used to group the number of departments under the Faculty of Applied Sciences and Technology into different strata whilst convenience sampling was used to select respondents from the different departments in the Faculty. Creswell (2014) stated that stratification means specific characteristics of individuals are represented in the sample and that reflects the true proportion in the population of individuals with certain characteristics. Convenience sampling chooses the nearest individual to serve as respondents and this process continues until the required sample size is obtained (Neuman, 2006). The researchers decided on the choice of these sampling units based upon their convenience. This covered all the departments and respondents that were located in lecture halls, libraries and halls/hostels.

The questionnaire was administered by the researcher personally. This took place in the second week in May, 2018. The data collection process for the questionnaire took two weeks. The Statistical Package for Social Sciences (SPSS) Version 22 was used to analyze the data. Data was presented in frequencies and percentages and graphical illustrations using tables among variables selected for clearer presentation.

ANALYSIS

Gender of Respondents

Out of the total 92 questionnaires returned and analysed, 65(70.7%) of them were males while the remaining 27(29.3%) were females. This was particularly done to avoid a situation where the study is skewed towards a specific gender and also to ensure the inclusion of views from the two gender in order to offer a realistic demographic results.

Respondents' Departments

Table 3 presents the various departments of respondents. The table depicts that most of the respondents who took part in the study were Computer Science students. This represent 44(47.8%) of the respondents. This is followed by Mathematics and Statistics students also representing 26(28.3%), whereas, the remaining departments, that is, Hotel, Catering and Institutional Management and Information Science had 16(17.4%) and 6(6.5%) respectively. This implies that, the study included a cross section of students from the Faculty of Applied Sciences, Kumasi Technical University in order to have a fair view of the issues at stake.

Table 3: Respondents' Departments

Department	Frequency	Percent(%)
Computer Science	44	47.8
Mathematics and Statistics	26	28.3
Information Science	6	6.5
Hotel, Catering and Institutional Management	16	17.4
Total	92	100.0

Source: field study, 2018

Age of Respondents

According to Kumar and Grover (2007), age affects the use of electronic resources and for that matter respondents were asked to indicate their age range. Table 4 shows the results as follows;

Table 4: Respondents Age Range

Age Range	Frequency	Percent(%)
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Below 20yrs	9	9.8
20-29yrs	66	71.7
30-39yrs	17	18.5
Total	92	100.0

Source: field study, 2018

As indicated in table 4 majority of the respondents fell within the ages of 20-29 years recording 66(71.7%) out of the total of 92 respondents. This was followed by the 30-39 year range 17(18.5%) and the remaining 9(9.8%) were made up of respondents who were below 20 years.

Awareness of E-journals

Patronage of a service depends on the level of awareness of such a service. Targeted audience for services that are often patronized could not have utilized the services if they were not aware of the services. As a result, Malemia (2014) pointed out that, e-journals are better utilized at places where awareness levels are very high and users are given adequate training. Kwadzo (2015) also stressed on the need for awareness creation in user services. As a result, respondents were asked to indicate their level of awareness of e-journal services provided by KsTU library.

Table 5 shows the results.

Table 5: Awareness of Scholarly E-journals at KsTU library

Awareness	Frequency	Percent(%)
Yes	40	43.5
No	47	51.1
NR	5	5.4
Total	92	100.0

Source: field study, 2018

NR: No Response

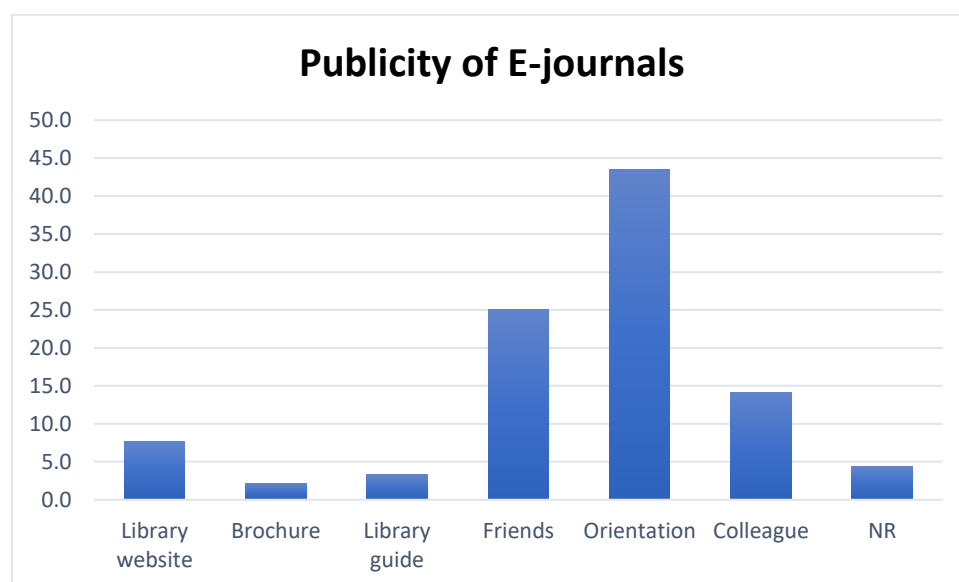
From table 4.4 above, 43.5% of respondents were aware of scholarly electronic journals at the KsTU library as against 51.1% who were not aware. Awareness of e-journals at KsTU was therefore, not encouraging as it fell below 50%. Nisha and Ali (2013) and Chirra and

Madhusudhan (2009) in a similar study on e-journals at Delhi University and Goa University respectively, also found that awareness levels were not encouraging at all.

Publicity of E-journals

Effective publicity methods are very important in ensuring good patronage of e-journals. To this end, Vasishta (2013) noted that promotion is the determining factor in the efficient use of complicated services like e-journals. Respondents were therefore asked of how they got to know of the existence of scholarly electronic journals at KsTU library. Figure 1 below gives a breakdown of the responses.

Figure 1: Publicity of E-journals



Source: field study, 2018 NR: No Response

As shown in figure 1, among the methods of creating awareness or publicizing scholarly e-journals at KsTU library, Orientation was the most used with a percentage of 43.5%. This was followed by Friends of the respondents telling them about the availability of e-journals at the library which had a percentage of 25. The least used method of publicity was the use of Brochures. This indicates that there is the need to intensify publicity through the available

media at KsTU library. Low level of awareness found earlier could therefore be attributed to this low level of publicity which concurs with the findings of Manda (2005).

Use of E-journals

In order to derive the maximum benefits from resources like e-journals, effective and efficient utilization is required. Optimum utilization also helps to justify the amount of money and other resources invested in such resources.

Format of Journal preferred by Respondents from KsTU

Scholarly electronic journals are acquired by academic institutions all over the world to be utilized in teaching, learning and research (Bamidele, Omeluzor & Amadi, 2013). However, the utilization of e-journals would depend on the format the journal users prefer because format plays a key role (Agyekum & Ossom, 2015). As such, it was important to find out from the respondents the format of journals they prefer which will enable one to determine if respondents would utilize the electronic version or not. Table 6 below shows the numbers and frequencies of journal formats preferred by respondents at KsTU.

Table 6: Preferred Journal Format

Journal format	Frequency	Percent (%)
Print	11	12.0
Electronic	29	31.5
Both	52	56.5
Total	92	100.0

Source: field study, 2018

From table 4.5, 52(56.5%) of the respondents preferred both print and electronic journals while 29(31.5%) of them preferred only electronic journals and only 11(12%) prefer print journals. The results indicate that, generally, there is a higher preference for electronic journals but most

of the respondents preferred both formats to complement each other in usage. Similar findings were reported by Kumar and Reddy (2014).

Usage of Scholarly Electronic Journals

Weiner (2003) pointed out that universities pay huge sums of money to acquire electronic journals on a large scale for users like students and faculty but they do not use them in the same scale. This shows that usage is a very important factor to be considered when it comes to the issue of scholarly e-journals. Therefore, as one of the objectives of the study, respondents were asked if they used scholarly e-journals provided by the KsTU library.

Table 7: Usage of Scholarly Electronic Journals

Usage	Frequency	Percent
Yes	41	44.6
No	47	51.1
NR	4	4.3
Total	92	100.0

Source: field study, 2018 NR: No Response

It can be seen from table 4.6 that, 41(44.6%) of respondents used scholarly e-journals provided by KsTU library as against 47(51.1%) who are non-users. It could be concluded then that, students of KsTU are not effectively utilizing the scholarly e-journals available to them from the library as indicated by Shija (2009) in his study on electronic resources in Tanzania. This prompts the need to employ all available resources and means to encourage and promote e-journal usage in KsTU.

Purposes of Using E-journals

In order to find the extent of use of e-journals, knowing the purposes of usage could also help. As such, respondents were asked to show the purposes for which they use e-journals and the responses are recorded in table 8 below.

Table 8: Purposes of Using E-journals

Purposes	n	Percent (%)
Class Assignments	92	59.4
Current Awareness	26	16.8
Research Report Writing	37	23.9
Total	155	100.0

Source: field study, 2018

As shown in table 8, all the respondents used e-journals to do their class assignments and some of them, in addition, used e-journals for Research report writing 37(23.9%) and for Current affairs 26(16.8%).

Accessibility of E-Journals

One of the most important issues in determining the use of information sources such as e-journals is accessibility. Increasingly, librarians who acquire e-journals are becoming aware of the need to urgently consider accessibility issues. Therefore, as an objective of the study, the extent of accessibility of scholarly e-journals was determined.

How Respondents learnt to Access E-Journals

A number of ways were used by respondents in learning to access e-journals and it will be in the best interest of KsTU library to know these access methods in order to come up with better access strategies and training for students and users in general to facilitate easy access to the rich e-journal contents. As a result, respondents who used scholarly e-journals were asked to indicate how they learnt to access the e-journals.

Table 9: How Respondents learnt to Access E-Journals

Learning Methods	Frequency	Percent (%)
Trial and error	33	35.9
Orientation	18	19.6
Guidance from library staff	21	22.8
Guidance from colleagues	18	19.6

No Response	2	2.2
Total	92	100.0

Source: field study, 2018

It can be observed from table 9 above that in KsTU, 33 out of 92 respondents representing 39.9% learnt to access scholarly e-journals by trial and error. Also, 21(22.8%) of the respondents learnt it by through guidance from library staff and those who learnt to access e-journals during orientation and by guidance from colleagues were 18(19.6%) each. It could then be concluded that respondents either had little or no training whatsoever which does not encourage accessibility of e-journals in any way. The findings go with that of Kumar and Reddy (2014) who also found that some of the scholars received adequate assistance from the library staff in using e-journals in their library.

4.5.2 Frequency of E-Journal Training in KsTU

One of the ways in which skills needed to use e-journals can be acquired is through training. Training is very critical to the use of electronic journals as it enables easy access to the rich contents of e-journals. It reduces the time to be spent on trial and error search thereby reducing research time to a large extent. Malemia (2014) stated that usage is enhanced where training is provided. Respondents were therefore asked a question on the frequency of training on e-journals given to them by the KsTU library. The results are indicated in Table 10 below.

Table 10: Frequency of Training of E-journals

Frequency of Training	Frequency	Percent (%)
Very often	1	1.1
Often	4	4.3
Once in a while	4	4.3
Not at all	68	73.9
Not Sure	14	15.2
No response	1	1.1
Total	92	100.0

Source: field study, 2018

From table 10, most of the respondents, that is, 68(73.9%) said no training whatsoever had been given to them on scholarly e-journals while 14(15.2%) of them said they were not sure of any such training. Those who said they had had training on e-journals once in a while and those who often had training were 4(4.3%) each. The impression one gets from this analysis is that, the KsTU library hardly provide training on e-journals for students. However, the findings compare favourably with the observations of Sinh and Nhung (2012) who indicated that no training was given to the respondents in their study on electronic resources.

Level of Proficiency in the Use of E-journals

Proficiency of respondents in the use of e-journals tells of their competency in accessing and using these e-journals. A question was asked to solicit for information from respondents on their level of proficiency in the use of scholarly e-journals at KsTU and the response is shown in Table 11 below.

Table 11: Level of proficiency

Proficiency	Frequency	Percent (%)
Highly proficient	10	10.9
Proficient	23	25.0
Moderately proficient	28	30.4
Quite proficient	18	19.6
Not proficient	9	9.8
Not at all	4	4.3
Total	92	100.0

Source: field study, 2018

As indicated in Table 4.10, 28(30.4%) out of a total of 92 respondents were found to be moderately proficient in the use e-journals while 23(25%), 18(19.6%), 10(10.9%) and 9(9.8%) were found to be proficient, quite proficient, highly proficient and not proficient respectively. It can therefore be said that, majority of the respondents had competencies and skills in

accessing e-journals to an appreciable level. Kumar and Reddy (2014) similarly, found majority of respondents to be proficient in the use of e-journals.

Problems Students face in Accessing and Utilizing E-Journals

Accessing and using e-journals at KsTU has never been without problems or limitations. Hence, this section looks at problems students face in accessing and utilizing scholarly e-journals.

Problems Encountered in Using E-journals

Problems or limitations generally prevent effective and efficient access and utilization of services including e-journal services. Kwadzo (2015) noted limitations like lack of search skills, lack of adequate ICT infrastructure, and bad downloading time. In view of that, respondents were asked to provide information on some of the limitations they encounter in using e-journals. Table 12 presents the results:

Table 12: Problems Encountered by Respondents in Using E-journals

Problems	N	Percent (%)
Information overload	29	7.1%
Lack of searching skills	46	11.2%
Lack of time for searching	38	9.3%
Inadequate networked computers	44	10.8%
Limited opening time for access to computers	24	5.9%
Not easy to use	12	2.9%
Power cuts	28	6.8%
Provides unorganized information	13	3.2%
Non-availability of required information	21	5.1%
Difficult to read from screen	11	2.7%
Access time cost	13	3.2%
Slow network	66	16.1%
Unstable network	55	13.4%
Publicity of e-journals	9	2.2%
Total	409	100.0%

Source: field study, 2018

Looking at table 12 above, one could observe that the major limitations encountered by KsTU students in using e-journals are slow network, unstable network and lack of searching skills with frequencies and percentages of 66(16.1%), 55(13.4%) and 44(10.8%) respectively. These findings are consistent with those reported by Kwafoa et al., (2014).

CONCLUSION

In conclusion, e-journals in KsTU were under-utilized and this is a common observation which has been a serious concern for information professionals in many academic institutions. E-journals are very expensive and for that reason, maximum access and use should be ensured in order to justify the financial investments made in the acquisition and maintenance, especially, in an environment where libraries continue to face budgetary constraints. Low level of awareness and limitations such as lack of training, unstable and slow which led to trial and error searching method also affected access and use of e-journals in KsTU. These challenges tend to make print journals very difficult if not impossible to replace. Suggestions to solve these problems included organizing more awareness programmes for KsTU students, provision of adequate bandwidth to enable faster internet access and downloading of articles and organizing training programmes to improve on computer skills as well as e-journal use proficiency of the students.

RECOMMENDATIONS

In solving the problem of under-utilization of electronic journals and improving e-journal services generally at KsTU, the following recommendations informed by the findings of the study were made in areas of awareness creation, training, and slow and unstable network (ICT infrastructure).

Lack of awareness of e-journals was found to be one of the problems in KsTU. In solving the problem of unawareness, it is recommended that KsTU library accept and employ good marketing strategies in order to attract most if not all of the students to access and use e-journals available to them from the library. Publicity and promotion of e-journals should be intensified to create more awareness. The librarian and the entire library staff should be engaged in adequate publicity of e-journal services and operations on a continuous basis. This can be done in several ways including sending a list of e-journal databases with their web addresses to all students through an email listserv, circulating information on e-journals throughout the university community as a whole, organizing exhibitions on e-journals for students, using attractive posters and banners to advertise e-journals, developing a bulletin specifically on e-journals for the entire university, periodically organizing sensitization and demonstration workshops and seminars on e-journals for students, using modern web technologies like whatsapp, facebook, linkedIn, twitter and the like to reach them with information on e-journals among others.

Another problem which came out of the findings of the study was lack of training resulting in trial and error searching thereby prolonging searching time. To be able to efficiently utilize the growing range of e-journals, students of KsTU need to have the expertise or skills required to exploit them. As a result, KsTU library need to organize training programmes and orientation sessions to teach students on accessing and retrieving articles from e-journals effectively at regular intervals which would also result in more awareness creation. In addition, a hard copy of the database could be distributed to all students of KsTU. Online guide and search options to e-journals could be provided on KsTU library web pages for all users including students. All these would also help students to retrieve desired content and get the best out of e-journals.

Besides, the KsTU library could develop handouts for each database with non-jargon, specific instructions for accessing e-journals and screen shots of what users should expect to see as they

move through the instructions. These handouts should be distributed to students or soft copies could be emailed to them. Individual library consultation sessions could also be considered, in which students meet one-on-one with the e-resources librarian and receive individualized training on how to access and use e-journal databases.

The study also identified Information Communication Technology (ICT) related problems of slow and unstable network as well as inadequate networked computers. Unfortunately, these happen to be some of Africa's biggest challenges in terms of ICT. Poor and inadequate ICT infrastructure hinder access and use of e-journals at KsTU library as confirmed by the findings from the study. As such, KsTU authorities should make a conscious effort to improve on the university's ICT infrastructure to facilitate access and use of e-journals. Adequate high-speed computer terminals should be installed in the various departments, computer laboratories and most especially, at the university library. Bigger bandwidth should be purchased so as to provide faster internet access to save users' time and be a source of motivation for the use of e-journals in KsTU. The university authorities should allocate sufficient funds to KsTU library to acquire the latest ICT equipment and upgrade all ICT facilities. These would solve the problem of slow and unstable network thereby enhancing access and use of e-journals in KsTU. It is the hope of the researcher that these recommendations would help solve the problem of under-utilization of e-journals in KsTU to a large extent if not completely.

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